



ASSISTANT CHEMICAL TESTING ENGINEER

Departmental Open

Exam Code: 8TR26

Department:	Caltrans
Bulletin Release Date:	April 17, 2018
Final Filing Date:	Continuous
Salary:	\$5,837.00 to \$7,303.00

INTRODUCTION

Caltrans is pleased to announce the posting of the **Assistant Chemical Testing Engineer** examination. **Employment from this examination may be offered statewide and a list will be established for use by all state agencies.**

EQUAL EMPLOYMENT OPPORTUNITY

Caltrans is an equal opportunity employer to all, regardless of age, ancestry, color, disability (mental and physical), exercising the right to family care and medical leave, gender, gender expression, gender identity, genetic information, marital status, medical condition, military or veteran status, national origin, political affiliation, race, religious creed, sex (includes pregnancy, childbirth, breastfeeding and related medical conditions), and sexual orientation.

DRUG FREE STATEMENT

It is an objective of the State of California to achieve a drug-free work place. All applicants will be expected to behave in accordance with this objective, as the use of illegal drugs is inconsistent with the law of the State, the rules governing civil service, and the special trust placed in public servants.

WHO SHOULD APPLY?

Candidates who meet the minimum qualifications as stated on this announcement may apply for this examination.

FILING INSTRUCTIONS

Candidates are required to submit **1) [Standard State Application \(STD.678\)](#)**, and **2) a completed Training and Experience Evaluation**.

To access the examination and submit your STD.678 electronically, please click [Here](#).

If you are having difficulties accessing the link, or would prefer to mail in an **STD678** and receive a paper copy of the examination, please submit a completed copy to the following address:

MAILING ADDRESS:

Caltrans
Examination Services (MS 86)
P.O. Box 168036
Sacramento, CA 95816-8036

SUBMIT IN PERSON:

Caltrans
Examination Services (MS 86)
1727 30th Street, 1st Floor
Sacramento, CA 95816

***Candidates are responsible for obtaining proof of submission of their application to Examination Services (proof of exam submission can be found at the end of the online examination).**

POSITION STATEMENT

Under direction, to perform responsible chemical testing engineering work in the analysis of engineering construction, consumer products and other materials; and to do other related work.

Performs the more responsible chemical analyses of raw material and finished products, such as: ferrous and nonferrous metals, protective coatings, traffic line paints, and other paints, fuel and weed oils, asphaltic materials, cement and concrete aggregates, soils, foundation materials, water, water for concrete, concrete curing materials, and other engineering or miscellaneous materials; assists in developing specifications for various construction and other materials; prepares and standardizes solutions used in analytical work; assists in conducting research and investigational work and developing methods and tests to determine the chemical composition and related qualities of road building, construction, and other materials purchased by the State; makes shop and field inspections for compliance with specifications and suitability and durability of the product; develops sampling and testing plans; may assist with the supervision of the work of assistants performing less responsible laboratory testing work; witnesses manufacturer's tests on products as a basis for acceptance or rejection; as required, makes the necessary physical analysis in connection with any particular project; prepares reports on materials tested.

ELIGIBLE LIST INFORMATION

An Open, Non-promotional, Servicewide eligible list will be established for statewide use. The list will be abolished 12 months after it is established unless the needs of the service and conditions of the list warrant a change in this period.

REQUIREMENTS FOR ADMITTANCE TO THE EXAMINATION

All applicants must meet the education and/or experience requirements for this examination by the final filing date. Your signature on the application indicates that you read, understand, and possess the minimum qualifications required, and that the information provided is true and complete to the best of your knowledge.

All applications must include: "to" and "from" dates (month/day/year), time base, civil service or private sector titles, the duties performed, and an original signature. Applications received without this information will be rejected.

NOTE: Qualifying experience may be combined on a proportionate basis if the requirements stated below include more than one pattern and are distinguished as "Either I," "or II," "or III," etc. For example, candidates who possess qualifying experience amounting to 50% of the required time of Pattern I, and additional experience amounting to 50% of the required time of Pattern II, may be admitted to an examination as meeting 100% of the overall experience requirements.

Click on the link below to review the California State Personnel Board class specification which contain the requirements for admittance to the exam:

<http://calhr.ca.gov/state-hr-professionals/Pages/3406.aspx>

MINIMUM QUALIFICATIONS

Either I

One year of experience performing the duties of a Junior Chemical Testing Engineer in the California state service.

Or II

Experience: Two years of responsible chemical testing engineering experience, one year of which must have been in the chemical testing of construction materials. (A Master's Degree in Chemistry or Chemical Engineering may be substituted for the required experience.) (Applicants who are pursuing graduate work toward a master's degree will be admitted to the examination, but must receive the degree before they will be considered eligible for appointment.) **and**

Education: Equivalent to graduation from college with major work in chemistry or chemical engineering. (Additional qualifying experience may be substituted for the required education on a year-for-year basis.)

EXAMINATION INFORMATION

This examination will consist of a **Training and Experience Evaluation** weighted 100%. In order to obtain a position on the eligible list, a minimum score of 70% must be attained.

[Click here](#) to access the **Training and Experience Evaluation**.

KNOWLEDGE AND ABILITIES

Knowledge of:

1. Principles of general chemistry
2. General chemical laboratory testing procedures
3. General chemical laboratory testing equipment (e.g., Ion chromatograph, Gas chromatograph, Analytical balance, Infrared spectrophotometer, X-ray diffraction spectrometer, Auto-titration analyzer, Metal analyzer, Stereomicroscope system, Color spectrophotometer)
4. Inorganic chemistry as it applies to the testing of highway, building construction, consumer products, and a wide variety of other materials
5. The fundamentals of organic chemistry with laboratory skills in qualitative and quantitative analysis
6. The fundamentals of inorganic chemistry with laboratory skills in qualitative and quantitative analysis
7. Methods and techniques of laboratory analysis
8. Hazards of laboratory and field activities
9. Laboratory terminology
10. Physics and mathematics
11. Laboratory tests and control techniques
12. The fundamentals of analytical instrumentation
13. Appropriate health, safety, and environmental regulations to provide for safe laboratory practices
14. Appropriate health, safety, and environmental regulations to provide for safe field practices
15. Record keeping procedures

Ability to:

1. Perform chemical testing work
2. Use laboratory equipment (e.g., Ion chromatograph, Gas chromatograph, Analytical balance, Infrared spectrophotometer, X-ray diffraction spectrometer, Auto-titration analyzer, Metal analyzer, Stereomicroscope system, Color spectrophotometer)
3. Use hand tools (e.g., beakers, tongs, droppers, graduated cylinders, funnels, tweezers)
4. Use power tools (e.g., drill, power saw, grinder)
5. Set up, care for, and use laboratory equipment
6. Base final decisions on laboratory test results, specifications, and fit for purpose
7. Prepare reports
8. Analyze situations accurately and take effective action
9. Utilize computer applications (Microsoft Word, Excel, PowerPoint, Outlook, etc.)
10. Maintain clear and accurate records
11. Use good verbal and written communication
12. Read and understand information and ideas presented in writing
13. Follow oral and written instructions
14. Enter test sample information into a computer database

15. Assess measurements for accuracy
16. Interpret charts, graphs, etc.
17. Determine significance of findings based on preset benchmarks
18. Categorize and store chemicals and solutions
19. Maintain effective working relationships with others
20. Exercise initiative and independent judgement
21. Apply general rules to specific problems to produce solutions
22. Recognize problems in a testing environment
23. Combine pieces of information to form general rules or conclusions, including finding a
24. Relationship among seemingly unrelated events
25. Choose the right mathematical methods or formulas to solve a problem
26. Prepare solutions and chemical reagents
27. Travel to worksites

Personal Characteristics:

1. Work in adverse weather conditions and/or at extreme heights
2. Lift and carry 40 pounds
3. Utilize precision techniques and fine motor skills for precise measurements

VETERANS' PREFERENCE

Veterans' Preference will be applied to those competitors who are successful in this examination and who qualify for, and have requested, Veterans' Preference through the California Department of Human Resources. Veterans who have achieved permanent civil service status are not eligible to receive Veterans' Preference.

CAREER CREDITS

Career Credits will not be added to the final score of this examination.

CONTACT INFORMATION

For more information regarding this examination, please contact the examination analyst at (916) 227-7791.

GENERAL INFORMATION

For an examination without a written feature, it is the candidate's responsibility to contact **the testing department** three weeks after the final filing date if he/she has not received his/her notice.

Applications are available at <https://jobs.ca.gov/pdf/std678.pdf>, California Department of Human Resources (CalHR) offices, and local offices of the Employment Development Department.

If you meet the requirements stated on this bulletin, you may take this examination, which is competitive. Possession of the entrance requirement does not assure a place on the eligible list. Your performance in the examination will be compared with the performance of the others who take this test, and all candidates who pass will be ranked according to their scores.

Caltrans reserves the right to revise the examination plan to better meet the needs of the service, if the circumstances under which this examination was planned change. Such revision will be in accordance with civil service laws and rules and all competitors will be notified.

General Qualifications: Candidates must possess essential personal qualifications including integrity, initiative, dependability, good judgment, and the ability to work cooperatively with others; and a state of health consistent with the ability to perform the assigned duties of the class. A medical examination may be required. In open examinations, investigation may be made of employment records and personal history and fingerprinting may be required.

Eligible Lists: Eligible lists established by competitive examination, regardless of date, must be used in the following order: 1) sub-divisional promotional, 2) departmental promotional, 3) multi-departmental promotional, 4) service-wide promotional, 5) departmental open, 6) open. When there are two lists of the same kind, the older must be used first. Eligible lists will expire in one to four years unless otherwise stated on the bulletin.

Veterans' Preference: Pursuant to Assembly Bill 372, Veterans' Preference will be awarded as follows, starting January 1, 2014:

1. Any veteran, widow or widower of a veteran, or spouse of a 100 percent disabled veteran, who achieves a passing score in an open examination, shall be ranked in the top rank of the resulting eligibility list.
2. Any veteran who has been dishonorably discharged or released is not eligible for Veterans' Preference.
3. Veterans' Preference is not granted once a person achieves permanent civil service status (Permanent State civil service status means the status of an employee who is lawfully retained in his/her position after completion of the applicable probationary period. This includes permanent intermittent, part-time, and full-time appointments. In addition, individuals who at any time achieved permanent State civil service status and subsequently resigned or were dismissed from State civil service are not eligible to receive Veterans' Preference).

Veteran status is verified by the California Department of Human Resources (CalHR). Directions to apply for Veterans' Preference are on the Veterans' Preference Application (CalHR Form 1093) which is available at <https://jobs.ca.gov/CalHRPublic/Landing/Jobs/VeteransInformation.aspx>, CalHR, and the Department of Veterans Affairs.

TTY is Telecommunications Device for the Deaf and is reachable only from phones equipped with a TTY Device.

For individuals with disabilities, this document may be available upon request in alternate formats. To obtain an alternate format, please call or write to Caltrans, Office of Examinations and Recruitment Services, P.O. Box 168036, MS 86, Sacramento, CA 95816. Voice (916) 227-7858 California Relay Service: Voice 1-800-735-2922 or TTY 1-800-734-2929.